Faisal Shahzad, 30, a United States naturalized citizen from Pakistan, pleaded guilty to a failed attempt to explode a car bomb in Times Square in New York City in May 2010. Shahzad was sentenced to life in prison. (Songquan Deng/Shutterstock.) $z$ - value 1.645 Faisal Shahzad, 30, a United States naturalized citizen from Pakistan, pleaded guilty to a failed attempt to explode a car bomb in Times Square in New York City in May 2010. Shahzad was sentenced to life in prison. (Songquan Deng/Shutterstock.)

$$P(ppf) = (0.8)(0.8)(0.2) = 0.128$$

(1) $f(x_i) \geq 0$

(2) $\sum\limits_{i=1}^{n} f(x_i) = 1$

(3) $f(x_i) = P(X = x_i)$

$f(x) = \{0.038, , , x, = , 1, 0.102, , , x, = , 2, 0.172, , , x, = , 3, 0.204, , , x, = , 4, 0.174, , , x, = , 5, 0.124, , , x$

Formula 1: $$ \begin{equation} \label{Formula1.Label} P (\Omega) = \int_{-\infty}^{+\infty} f (x) \: dx = 1 \end{equation} $$

Formula 2: $$ \begin{equation} \label{Formula2.Label} E (X) := \int_{-\infty}^{+\infty} x \: f (x) \; dx \end{equation} $$

A third one, with references to 1 and 2: $$ \begin{equation} \begin{array}{ll} E (a X + b) & = \int_{-\infty}^{+\infty} (a x - b) \: f(x) \: dx \\ \\ & = a \int_{-\infty}^{+\infty} x \: f(x) \: dx + b \int_{-\infty}^{+\infty} f(x) \: dx \\ \\ & \underset{\eqref{Formula1.Label}, \eqref{Formula2.Label}}{=} a E(X) + b \end{array} \end{equation} $$

And another one: $$ \begin{equation} V(X) = \frac{a^2 + b^2 + c^2 - ab - ac - bc}{18} \end{equation} $$